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EXAMINER
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ART UNIT	PAPER NUMBER
2713	7

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DATE MAILED: 05/05/00

Please find below and/or attached an Office communication concerning this application or proceeding.

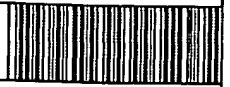Commissioner of Patents and Trademarks

☒ Responsive to communication(s) filed on *Mar 1, 2000*   .

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire ___*three*___ month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-29* _____ is/are pending in the application.

    Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-29* _____ is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

    ☐ All ☐ Some* ☐ None   of the CERTIFIED copies of the priority documents have been

        ☐ received.

        ☐ received in Application No. (Series Code/Serial Number) _____ .

        ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    *Certified copies not received: _____ .

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- *SEE OFFICE ACTION ON THE FOLLOWING PAGES* ---

DETAILED ACTION

Response to Amendment

1.   As per Applicant's instruction in Paper 17 as filed on 7/6/99, claims 1, 18, and 29 have been amended.

2.   Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

4.   Claim 29 is rejected under 35 U.S.C. 102(e) as being anticipated by Wheeler et al (5,825,680).

Wheeler et al disclose a computer product (Fig. 1) comprising a medium having program means for use in encoding a sequence of video data comprising: computer program means (CPU) for storing multiple sets of quantization matrix tables (Col. 13, lines 28-32) comprising separate, independent sets of quantization (Q) matrix tables (434) comprising at least one intra matrix table and at least one non-intra matrix table (690);   computer program means for quantizing video data in a single pass using at least one set of quantization (Q) matrix tables of the multiple sets of Q matrix tables (Col. 13, Lines 18-28);   and computer program means for

dynamically switching the quantizing during the single pass from using one set of the Q tables to using another set of Q matrix tables of the multiple sets of Q matrix tables (Col. 13, Lines 31-32) as specified in claim 29.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 1-4, 10-12, 18-20, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama (5,422,736) in view of Wheeler et al (5,825,680).

Katayama discloses an encoder comprising: storage for holding multiple sets of quantization matrix tables (Fig. 8) comprising separate, independent sets of quantization (Q) matrix tables (58, 59, 60);   a quantizer (6) for quantizing video data in a single pass using at least one set of Q matrix tables of the multiple sets of Q matrix tables;   and means for dynamically switching (56 and 57) the quantizer during the single pass quantizing from using one set of the Q tables to using another set of Q matrix tables of the multiple sets of Q matrix tables as specified in claims 1 and 18. Katayama does not particularly disclose Q matrix tables comprising at least one intra matrix table and at least one non-intra matrix table. However, Wheeler et al disclose the use of quantization matrix tables comprising an intra table and a non-intra table (690) to manipulate the desired level of image quality. Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing an encoder as taught by Katayama to include a conventional quantization matrix tables comprising an intra table and a non-intra table as taught by Wheeler et al to manipulate the desired level of image quality as specified.

Regarding claims 2 and 19, Katayama discloses switching the quantizer from using one set of the Q tables to using another set of Q matrix tables of the multiple sets of Q matrix tables at a picture boundary of the sequence of video data (Col. 8, lines 3-33) as specified.

Regarding claims 3, 12, 20, and 25, Wheeler discloses dynamically switching one set of Q matrix tables to another set of Q matrix tables without delaying encoding of video data or dynamically (real time) changing Q matrix tables (Col. 13, lines 28-32) as specified.

Regarding claim 4, Wheeler discloses the use of conventional table set register (692) to control switching of the quantizer as specified.

Regarding claims 10-11 and 23-24, Katayama discloses quantization matrix tables comprising luminance and chrominance (Col. 5, lines 34-49) and Wheeler et al disclose quantization matrix tables comprising an intra table and a non-intra table (690). Therefore, it is considered obvious to combine Katayama's quantization matrix tables comprising luminance and chrominance and Wheeler's quantization matrix tables comprising an intra table and a non-intra table so that the quantization matrix tables comprises an intra luminance table, a non-intra luminance table, an intra chrominance table, and a non-intra chrominance table to manipulate the desired level of image quality as specified.

7.   Claims (5-6, 9), and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama and Wheeler et al as applied to claims 1 and 18 above, respectively, and further in view of Sasaki et al (5,530,478).

The combination of Katayama and Wheeler et al does not particularly disclose having a default quantization matrix table. However, Sasaki et al teach the use of a default quantization matrix table (201) as specified in claims 5-6, 9, and 21. Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing an encoder as taught by Katayama to include a conventional default quantization matrix tables as taught by Sasaki et al so that at least

one table or multiple tables of the set of Q matrix tables comprise default quantization matrix tables pursuant to MPEG standard to insure the conventional level of image quality as specified.

8.   Claims 7-8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama and Wheeler et al as applied to claims 1 and 18 above, respectively, and further in view of Rick et al (5,987,179).

The combination of Katayama and Wheeler et al does not particularly disclose Q tables comprising user's custom quantization matrix tables. However, Rick et al disclose the use of conventional custom quantization matrix tables (Col. 5, lines 36-38) to insure the desired level of image quality as specified in claims 7-8 and 22. Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing an encoder as taught by Katayama to include a conventional custom quantization matrix tables as taught by Rick et al so that at least one table or multiple tables of the set of Q matrix tables comprise custom quantization matrix tables to insure the desired level of image quality as specified.

9.   Claims 13-17 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama and Wheeler et al as applied to claims 1 and 18 above, respectively, and further in view of Hosono (5,796,438).

The combination of Katayama and Wheeler et al do not particularly disclose a compressed store interface for outputting a compressed bitstream for dynamically outputting a Q matrix extension start code in the compressed bitstream. However, Hosono discloses a compressed store interface for outputting a compressed bitstream for dynamically outputting a Q matrix extension start code in a compressed bitstream (Col. 10, lines 1-38) in order to access multiple sets of Q matrix tables as specified in claims 13 and 26. Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing an encoder as taught by Katayama to include a teaching of compressed store interface for outputting a compressed bitstream for dynamically

outputting a Q matrix extension start code as taught by Hosono in order to access multiple sets of Q matrix tables as specified.

Regarding claims 14, it is considered obvious for the compressed store interface to have a storage in order to hold the multiple sets of Q matrix tables.

Regarding claims 15-17 and 27-28, Wheeler et al disclose that during encode and decode, the CPU loads the tables as required and CPU being responsible for updating Q tables on video stream context switches (Col. 13, lines 30-31), which clearly anticipates switching one set of Q matrix tables to another set of Q matrix tables without delaying or pausing encoding of video data or dynamically (real time) changing Q matrix tables or while quantizing the sequence of video data as specified.

Conclusion

10.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2713

11.   Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Shawn An whose telephone number is (703) 305-0099.

CHRIS S. KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2700

ssa

May 3, 2000